IN THE CLAIMS:

Please amend claims as follows:

1. (Previously Presented) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a first control unit for computing a first clutch torque of the clutch unit based on a deviation between the target differential speed and the actual differential speed,

a throttle opening amount detecting unit for detecting a throttle opening amount,

a second control unit for computing a second clutch torque of the clutch unit based on the throttle opening amount,

a tire diameter difference computing unit for computing a diameter difference of a tire, and

a final clutch torque computing unit for computing a final clutch torque wherein the final clutch torque computing unit computes the final clutch torque by a computation involving the first clutch torque and the second clutch torque in association with a ratio coefficient value which ratio coefficient value changes according to the diameter difference of the tire so as to suppress a wheel slippage.

2. (Previously Presented) The differential limiting control apparatus as set forth in claim 1, wherein:

the first control unit comprises:

a first clutch torque computing unit for computing the first clutch torque by obtaining the deviation between the target differential speed and the actual differential speed with a switching function by using at least a polarity related to an integral term of the deviation and by applying a sliding mode control.

3. (Previously Presented) The differential limiting control apparatus as set forth in claim 1, wherein:

the final clutch torque computing unit reduces the ratio coefficient value associated with said second clutch torque and increases the ratio coefficient value associated with said first clutch torque as the diameter difference of the tire increases.

4. (Canceled).

5. (Original) The differential limiting control apparatus as set forth in claim 1, wherein:

the clutch unit is interposed between a front axle and a rear axle.

6. (Original) The differential limiting control apparatus as set forth in claim 2, wherein:

the clutch unit is interposed between a front axle and a rear axle.

7. (Original) The differential limiting control apparatus as set forth in claim 3, wherein:

the clutch unit is interposed between a front axle and a rear axle.

8. (Canceled).

9. (Previously Presented) The differential limiting control apparatus as set forth in claim 1, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

10. (Previously Presented) The differential limiting control apparatus as set forth in claim 2, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

11. (Previously Presented) The differential limiting control apparatus as set forth in claim 3, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

12-25. (Canceled).

26. (Previously Presented) The differential limiting control apparatus as set forth in Claim 1, further comprising a brake switch, and

when an ON signal is inputted from the brake switch, the second clutch torque is made to be zero.

27-28. (Canceled).

29. (Previously Presented) The differential limiting control apparatus as set forth in claim 1, wherein the final clutch torque (T lsd) involves the following equation:

Tlsd=Rtr Tlsdff + (1-Rtr) Tlsdfb

with Rtr representing the ratio coefficient value in tire diameter difference constant;

Tlsdff representing the second clutch torque; and

Tlsdfb representing the first clutch torque.

30. (Canceled)

31. (Previously Presented) The differential limiting control apparatus as set forth in claim 29, wherein

the Rtr decreases as the diameter difference of the tire increases.

32. (Previously Presented) The differential limiting control apparatus as set forth in claim 29, wherein

the Rtr is 0.5 in the case where the diameter difference of the tire is substantially zero.

33. (Canceled).

34. (New) The differential limiting control apparatus as set forth in claim 1, wherein the first torque and the second torque are summed at a specific rate and said specific rate changes according to the diameter difference of the tire.

35. (New) The differential limiting control apparatus as set forth in claim 1, wherein the ratio of the first clutch torque increases and the ratio of the second clutch toque decreases as the diameter difference of the tire increases, and the ratio of the first clutch torque decreases and the ratio of the second clutch toque increases as the diameter difference of the tire decreases.

36. (New) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a first control unit for computing a first clutch torque of the clutch unit based on a deviation between the target differential speed and the actual differential speed,

a throttle opening amount detecting unit for detecting a throttle opening amount,

a second control unit for computing a second clutch torque of the clutch unit based on the throttle opening amount,

a tire diameter difference computing unit for computing a diameter difference of a tire and outputting a tire diameter difference value, and

a final clutch torque computing unit for computing a final clutch torque wherein the final clutch torque computing unit receives, as an input, said tire diameter difference value and computes the final clutch torque by a computation involving the first clutch torque and the second clutch torque, and which computation includes a ratio coefficient value which ratio coefficient value changes according to the diameter difference of the tire so as to vary the final clutch torque to promote wheel slippage suppression.

37. (New) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a first control unit for computing a first clutch torque of the clutch unit based on a deviation between the target differential speed and the actual differential speed,

a throttle opening amount detecting unit for detecting a throttle opening amount,

a second control unit for computing a second clutch torque of the clutch unit based on the throttle opening amount,

a tire diameter difference computing unit for computing a diameter difference of a tire and outputting a tire diameter difference value, and

a final clutch torque computing unit for computing a final clutch torque wherein the final clutch torque computing unit receives, as an input, said tire diameter difference value and computes the final clutch torque by a computation involving (i) the first clutch torque and a first weighting value associated with said tire diameter difference value and (ii) and the second clutch torque and a second weighting value associated with said tire diameter difference value, and wherein said first and second weighting values vary in opposite fashion upon a change in the tire diameter value.